cursor. Siemens has embedded a similar camera-based game, Mosquito, on its latest range of camera phones. Mobile Scope will make the game available for download via its mobile entertainment portal partners.

... blogging ...

In Asia, meanwhile, one prevalent application uses the camera as a bar-code reader. According to Japanese mobile browser company Access, 2D bar codes are driving photo messaging in Japan.

... barcodes ...

Magazine or poster advertisements feature bar codes that can be photographed and sent to the advertiser in order to receive more information, coupons and so on. Access says the use of photo messaging for bar-code reading is more successful than "regular" photo messaging.

... and photo enhancements could help grow the market

Other companies are looking at ways to enhance the camera functionality. RealEyes3D, a France-based company backed by Siemens Mobile Acceleration, targets advanced image processing for mobile handsets. Using visual intelligence, it focuses on applications beyond the photo-modification-type apps that are fairly commonplace.

The company's first application set is deliberately aimed at the mass market, says Benoit Bergeret, Realeyes3D's president and CEO, but future applications will be dedicated to other segments, including the enterprise market.

Realeyes3D's first product, which is available for Nokia Series 60 handsets, focuses on handwritten messaging. The application – which the company is working to get embedded into handsets – enables subscribers to jot down a message or make a drawing on a piece of paper, take a photo of the note and superimpose it onto a photo on the handset. It can then be sent as a note or mobile postcard.

Bergeret says such handwriting extraction is one way of adding an attractive form of text messaging to the mobile message spectrum. "It has enormous potential in Asia, [where] a handwritten note shows much more [than a typed one]," he points out. The firm has also focused on ease of use, so that a message including a handwritten note can be created and sent with only five clicks.

The company estimates that the application has the potential to grow messaging traffic 10-20%, based on users of the application sending an additional one or two MMS messages per month. "The value proposition of picture messaging is incredibly low, so it's easy to bring value," adds Bergeret. In addition, he argues, handwritten notes are likely to provoke a response from the recipient, bringing additional traffic.

French imaging firm DXO has developed MMS picture-enhancing tools that it hopes to embed into camera phones to drive more traffic. As well as a handwriting application that is similar to the one produced by Realeyes3D, the company offers an image-enhancement service that requires the mobile user to send the image to the DXO servers. The enhanced image is then returned to the mobile. This service might help to generate MMS revenue even from users who do not send many P2P messages.

As with regular photo messaging, however, applications such as those from Realeyes3D and DXO still require the recipient to have an MMS handset, and usage will remain constrained by handset penetration. There are also two problems for A2P MMS in the longer term. One is the challenge presented by WAP Push as an alternative content delivery mechanism and the other is e-mail.